# NISTTech

## SIGNAL GENERATOR, PROCESS FOR MAKING AND USING SAME

**Docket:14-035**

## Abstract

Microwave frequency generation by the detection of an optical pulse train is combined with direct digital synthesis (DDS) technology to synthesize frequencies from near DC to many IOs ofGHz, limited by the bandwidth of the photodetector. The array of equally spaced microwave tones generated in the detection of optical pulses forms the backbone upon which any desired frequency may be synthesized. One tone is used to clock the DDS, allowing the synthesis of frequencies up to nearly half the clock frequency. The DDS output is then mixed with any other microwave tone. When the DDS output range is greater than the tone separation, any frequency can be generated within the photodetector bandwidth.

## Status of Availability

This invention is available for licensing exclusively or non-exclusively in any field of use.

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